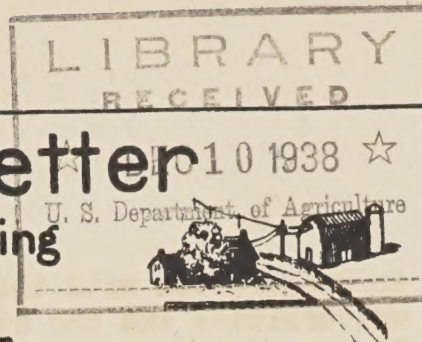


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Monthly News Letter

Bureau of Agricultural Engineering

U. S. DEPARTMENT OF AGRICULTURE

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November 25, 1938

No. 3

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: Attention is again called to the fact that since
: Christmas this year and New Years' Day, 1939, fall on
: Sunday, there will be three full days off both at
: Christmas and New Years, namely, December 24-26, in-
: clusive, and December 31 - January 2, inclusive.
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Di 6350 Becomes Re 4142

Because of the lack of a sufficient number of
trunk lines in sequence in the District exchange of the
local telephone company, it becomes necessary to change
the calling number of the Department of Agriculture from
District 6350 to Republic 4142.

This change has already taken place and between
now and December 1 all the telephone number plates will
be changed to show the new number.

For the time being, until there is an entire dis-
continuance of the calling of District 6350, you will be
able to get the Department by calling either the old or
new number. However, you should start immediately to
make your calls to Republic 4142 rather than to District
6350.

Joseph Haley,
Chief, Division of Operation
Office of the Secretary
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Studies of corn storage in farm cribs are being made in three
counties in Iowa; two in Minnesota; three in Illinois and two in
Indiana. Some 20 to 25 cribs in each county will be carefully examined
and the corn sampled at intervals throughout the winter. This work is
being conducted by Messrs. Barre, Cleaver and Swanson and their assistants,

in cooperation with the agricultural engineering departments of the universities and the agricultural conservation committees of the four States.

Experimental storage tests are going on at Ames, Iowa, and Urbana, Ill., in cooperation with the experiment stations. At Ames the equipment under investigation includes a large double corncrib used last year and seven prefabricated steel cribs loaned by manufacturers. At Urbana experiments are being conducted with the weighable 300-bushel cribs used in previous experiments. At both of these stations and at Fargo, North Dakota, Cadillac and Paw Paw, Michigan, College Park, Maryland, and Athens, Georgia, data on drying rates and equilibrium moisture of corn are being obtained using groups of ears individually exposed in shelters. The data obtained from these studies and from observations obtained in the county studies referred to above will be correlated with weather data obtained from 30 or more airway stations of the Weather Bureau. One use that may be made of these data is the preparation of maps showing the influence of weather upon the equilibrium moisture content and drying rate of corn in the various corn growing sections at different seasons.

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m Miss Juliette Mayer has been temporarily employed by the Bureau at Madison, Wisconsin to study the effect of farmhouse remodeling upon the use made of the house by the family. Miss Mayer will work in close cooperation with Max J. La Rock of the Agricultural Engineering Department and Miss Cowles of the Home Economics Department of the University of Wisconsin.

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After five years the roof covering of the canvas-covered buildings at Beltsville in many places needs replacing but wall coverings were in general in good condition. Some of the treatments had not prevented moisture from entering and causing decay of the canvas. The panels have not been painted since originally installed.

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Raymond B. Mitchell has recently been appointed to assist J. W. Simons in the farmhouse project at Athens, Georgia, for the winter tests.

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L. A. Jones visited J. T. Olsen at Greenwood, Miss. where Mr. Olsen recently began investigations of the drainage districts of the State. He also visited F. E. Staebner in New Orleans and B. O. Childs at Lafayette, Louisiana, in connection with their work in irrigation and the operation of the CCC camps in Louisiana.

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A study of the irrigation requirements of the eastern humid areas of the United States has recently been inaugurated in cooperation with the Weather Bureau and with the aid of WPA funds. F. E. Staebner has recently returned from New Orleans where he spent five weeks in directing the start of the work.

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Good Weather conditions made possible the continuation of peak production in the CCC drainage camps throughout October. Accomplishment for the month shows a total of 4,980,921 square yards of clearing, 1,873,465 cubic yards of excavation and embankment, 30,510 lineal feet of tile reconditioning, and structural and miscellaneous maintenance work with expenditure of 107,999 man-days.

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In October, a demonstrational tour of a truck excavator, low-cost ditcher for small drainage channels under development in the Central District CCC, was conducted on work projects of Northern Indiana Drainage Camps. The demonstrations were arranged through the camp superintendents at Monon, Frankton, Lebanon, Valparaiso, South Bend, and Fort Wayne, by D. A. Isler, in charge of machinery development work in the District and D. H. Harker, Collaborator with the Purdue University Extension Service.

The demonstrations given after a three-day trial run at each location were attended by County Agents, surveyors and commissioners as well as local farmers, numbering from 20 to 80 in attendance at each demonstration. Particular interest was shown in the unit for use in maintenance work on small ditches handled in that area on the allotment cleanout plan and for shoal removal in larger ditches. The demonstrations also provided opportunity for study of the unit under a wide range of operating conditions varying from the peat land near South Bend to the sticky clay soil near Lebanon, and as a result improvements are under way to overcome minor difficulties encountered.

The unit consists of a gas driven double-drum motor hoist mounted on 1-1/2 ton truck chassis, and fitted with a light 25-foot detachable boom for return of specially designed scrapers of four to five cubic foot capacity. Results thus far indicate excavation cost under average conditions will range from 20 to 30 cents per yard. Approximate cost of the unit is \$900, exclusive of the truck.

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A conference of Superintendents and Engineers of the southeast Missouri Drainage Camps was held at New Madrid, Missouri, October 20-22. In addition to the presentation of numerous technical papers by various camp personnel, the meeting was addressed by Professor J. C. Wooley, Head of the Department of Agricultural Engineering, University of Missouri, and H. H. Kusekoph, Professor of Soils, also of the University of Missouri, as well as the District Engineer, John G. Sutton, and State Drainage Inspector, Clark E. Jacoby. The meeting was well attended by approximately 50 local county and drainage district officials and landowners.

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A. T. Mitchelson returned to Berkeley, November 2, from Washington, D. C., where he consulted with George R. Boyd and with officials of the Office of Experiment Stations, the Soil Conservation Service, the Bureau of Plant Industry, and others, regarding work of the Division of Irrigation. Enroute to Washington he conferred with O. W. Israelsen at Salt Lake City and with Forest Service officials at Ogden. He also met M. R. Lewis and Dean C. Muckel at Scottsbluff, Nebr. and discussed with them and with the Superintendent of the Scottsbluff Station, the

future cooperative work at the Station. On his return trip he conferred with Harry G. Nickle at Austin, Texas, and with Harry F. Blaney at Los Angeles.

R. L. Parshall prepared a design for a model riffle deflector vortex tube sand trap to be tested at the Bellvue laboratory, Colo. to obtain data needed in designing a similar sand trap for use in the New York Canal of the Boise project, which has a capacity of 2,800 second-feet. The model will be about 7 feet long and will be installed in a section of canal 30 feet long, having a discharge of 15 second-feet.

A conference of workers of the Division of Irrigation engaged in snow survey and irrigation water supply forecasting was held at Salt Lake City, Utah, October 17, those present being J. C. Marr, R. L. Parshall, R. A. Work, Geo. D. Clyde, O. W. Monson, Carl Elges, L. T. Jessup and Paul A. Ewing. Plans for the work of the coming winter were discussed and the text of a Snow Survey Manual prepared by Mr. Marr was reviewed. Arrangements have been made for cooperation with the State Engineer of Montana and the Montana Agricultural Experiment Station in snow survey work during the coming winter.

Dean C. Muckel completed his work in connection with a study of irrigation possibilities in South Dakota, and returned to Pomona, Calif., October 15. He is now assisting Harry F. Blaney in gathering data for a report on Los Angeles River Flood Control.

M. R. Lewis made an examination of the drainage problem on the Smith Valley Soil Conservation District in Lyon County, Nevada, where some 10,000 or 12,000 acres of land are either already affected by high water table or alkali or are seriously threatened with these evils. Mr. Lewis recommended that an investigation be made to determine what drainage should be undertaken and its cost.

Harry F. Blaney represented the Bureau at the Regional Board meeting of Region 10 of the Soil Conservation Service at Reno, Nev., on October 4. The subject of Soil Conservation Districts in California and Nevada was discussed, and it was stated that several areas in California had considered forming districts. The water facilities program also was discussed in some detail. A trip was made to the Walker River project of the Soil Conservation Service, in southern Nevada. Here the problems seems to be primarily a high water table caused by seepage from unlined canals built in porous material resulting in accumulation of alkali. The difficulty probably can be overcome by combining the several small diversion canals into one large canal and lining it.

Mr. Blaney also attended a meeting of the Committee on Water Supply, Irrigation, and Drainage for Los Angeles County, which committee is sponsored by the Agricultural Extension Service of the College of

Agriculture, University of California. Use of saline waters for irrigation was discussed, as well as contamination of irrigation supplies by percolating saline waters from higher lands, and by industrial wastes. A sub-committee was appointed to study the situation and make recommendations as to ways and means of having a survey made by Federal, State and local interests.

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Wells A. Hutchins conferred with Charles R. Brannan, Regional attorney, Office of the Solicitor, Denver, Colo. concerning the study of western water laws which Mr. Hutchins has been carrying on for several months in cooperation with the Office of the Solicitor. He was also called upon to consult with the Legislative Committee of the South Dakota Reclamation Association, at Rapid City, S.D., concerning proposed irrigation legislation in that State. The committee is desirous of setting up a board or commission to further reclamation, and of providing for the formation of districts authorized to issue revenue bonds.

Colin A. Taylor reports progress in making the broad-furrow method of citrus orchard irrigation applicable in difficult situations. In making side-hill or contour furrows, blades of the folding wings of the furrowing machine were adjusted to the contour of the land. The machine was also demonstrated for making furrows with a full offset - 2 furrows to the right or 2 furrows to the left. In order to accomplish this, the necessary traction was obtained to hold the offset by using discarded automobile tires of the jumbo balloon type filled $3/4$ full of water. This greatly improved the grip on the soil. There are a number of old orchards in the vicinity of Pomona, Calif., where erosion has been so bad that the trees are now on mounds a foot or more above the furrow panel. In such cases furrows cannot be placed close to the trunks, and cross furrows are required for adequate irrigation. Ten acres of this type were cross-furrowed with broad furrows and blocked out for the cross-blocked method of irrigation. Straight furrows have been found more practical wherever they may be used. Cross-blocking is for special cases.

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Homer J. Stockwell was appointed Junior Irrigation Engineer and reported for duty at Pomona, Calif., October 1. He will assist Colin A. Taylor and John O. Reeve in field and laboratory work in connection with studies of the irrigation of subtropical fruit.

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In a recent field trip covering all the field activities of the Division of Mechanical Equipment, R. B. Gray made his first stop at Auburn, Ala., where he conferred with R. M. Merrill and his co-workers regarding future plans on the project. Extending tillage studies to several different soil types mainly on substations of the Alabama Agricultural Experiment Station is contemplated.

In Louisiana Mr. Gray in company with E. D. Gordon visited a number of sugar cane growers and inspected a cane windrower as well as a cane harvester.

At the starch plant at Laurel, Miss., he found that considerable machinery work appears to be necessary to mechanize sweet potato growing on a large scale. J. W. Randolph made good progress in adapting an Irish potato digger to digging sweet potatoes, work started by W. M. Hurst last year. In mechanization considerable difficulty is encountered because of numerous pine stumps left in the fields. A general stump clearing program would materially facilitate machinery development.

At Davis, Calif., Mr. Gray attended the one-day conference of the U. S. Beet Sugar Association committee at which Messrs. McBirney and Mervine were also present. Future plans were discussed with these men both at Davis and later with Mr. Mervine in Fort Collins.

A summary of the single seed planter, mechanical blocking and thinning and beet harvester work for the past six months was given and general programs for the coming year presented.

At Logan, Utah, Mr. Gray discussed the weed control project with E. M. Dieffenbach and members of the Station staff. In that State wild morning glory is public enemy No. 1 with white top a close second and sow thistle third. In addition to the development of suitable equipment, mechanical or electrical, community cooperation is important. This latter is being accomplished by county organizations.

The corn production work at Ames, Iowa, was discussed with C. K. Shedd, and Dr. J. B. Davidson and others. Field pickers were observed in operation including an experimental picker developed cooperatively by this Bureau and the Station. Observations were also made of the laboratory and field equipment being used in connection with the tests of transport wheels.

The pest control project was discussed with Frank Irons and his coworkers at Toledo, Ohio. Attention is now being focused on the development of a satisfactory but low-cost grasshopper bait distributor and the publication of plans. The machine as now constructed appears to have much promise and its use in numbers should materially aid in the control of this pest. Work on corn borer equipment will be resumed in the spring.

The annual meeting of the National Joint Committee on Fertilizer Application was held in Washington, D. C., November 14. G. A. Cumings briefly discussed the desirability of expanding the activities of the committee in view of the nation-wide interest in fertilizer placement research and machinery developments. The committee approved the appointment of six subcommittees covering fertilizer placement research according to four geographical areas of the country, fundamental factors and machinery improvements. Under the direction of W. H. Redit and L. G. Schoenleber a number of state cooperators inspected the Bureau fertilizer machinery laboratory and experimental equipment at the Arlington Experiment Farm.

At the autumn meeting of the Utah Academy of Sciences, Arts and Letters, held at Provo, Utah, November 5, E. M. Dieffenbach presented a talk on "Weed Machinery". His presentation was illustrated with colored slides.

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R. M. Merrill visited the Mississippi Experiment Station at State College, Miss., and the Delta Station at Stoneville. The Cotton Ginning Laboratory at Stoneville and mechanical cotton picking operations at Clarksdale were visited.

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I. F. Reed visited the North Alabama Experiment Station November 8 and 9 to arrange for experimental fields for cotton and seedbed preparation studies.

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